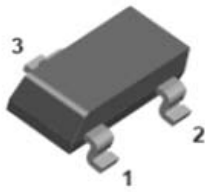
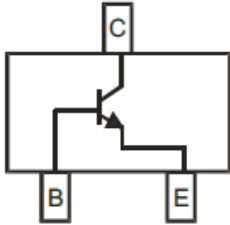


NPN Small Signal Transistor

**SOT-23**

Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic Insertion

Application

- Signal amplification
- Switching circuit

Mechanical data

- **Package:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

■ Maximum Ratings (T_a=25°C Unless otherwise specified)

| Item | Symbol | Unit | Conditions | Value |
|---------------------------|------------------|------|--|-------------|
| Device marking code | | | | 1C |
| Collector-base voltage | V _{CB0} | V | I _C = 10μA, I _E =0 | 80 |
| Collector-emitter voltage | V _{CE0} | V | I _C =10mA, I _B =0 | 65 |
| Emitter-base voltage | V _{EB0} | V | I _E = 10μA, I _C =0 | 6 |
| Collector current | I _C | A | | 0.1 |
| Power dissipation | P _D | mW | | 200 |
| Junction temperature | T _J | °C | | -55 to +150 |
| Storage temperature | T _{STG} | °C | | -55 to +150 |



BC846C

■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

| Item | Symbol | Unit | Conditions | Min | Typ | Max |
|--------------------------------------|----------------------|------|---|-----|-----|-----|
| Collector-base breakdown voltage | V _{(BR)CBO} | V | I _C =10μA, I _E =0 | 80 | | |
| Collector-emitter breakdown voltage | V _{(BR)CEO} | V | I _C =10mA, I _B =0 | 65 | | |
| Emitter-base breakdown voltage | V _{(BR)EBO} | V | I _E =10μA, I _C =0 | 6 | | |
| Collector-base cut-off current | I _{CBO} | uA | V _{CB} =70 V | | | 0.1 |
| Emitter-base cut-off current | I _{EBO} | uA | V _{EB} =5V | | | 0.1 |
| DC current gain | h _{FE} | | V _{CE} = 5V, I _C = 2mA | 420 | | 800 |
| Collector-emitter saturation voltage | V _{CE(sat)} | V | I _C =100mA, I _B =5mA | | | 0.5 |
| Base-emitter saturation voltage | V _{BE(sat)} | V | I _C =100mA, I _B =5mA | | | 1.1 |
| Transition frequency | f _T | MHz | V _{CE} =5V, I _C = 10mA f=100MHz | 100 | | |
| Collector-base output capacitance | Cob | pF | V _{CB} =10V, f=1MHz | | | 4.5 |

■ Thermal Characteristics

| Parameter | Symbol | Unit | Value |
|---|----------------------------------|------|-------|
| Thermal resistance, junction-to-ambient | R _{θJ-A} ⁽¹⁾ | °C/W | 625 |
| Thermal resistance, junction-to-case | R _{θJ-C} ⁽¹⁾ | °C/W | 500 |

Note:

(1) Device mounted on PCB, single-sided copper, with standard footprint



■ Characteristics

Fig 1: Static Characteristics

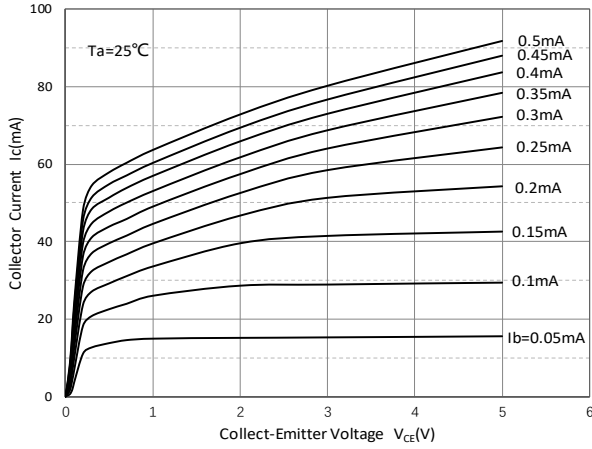


Fig 2: DC Current Gain

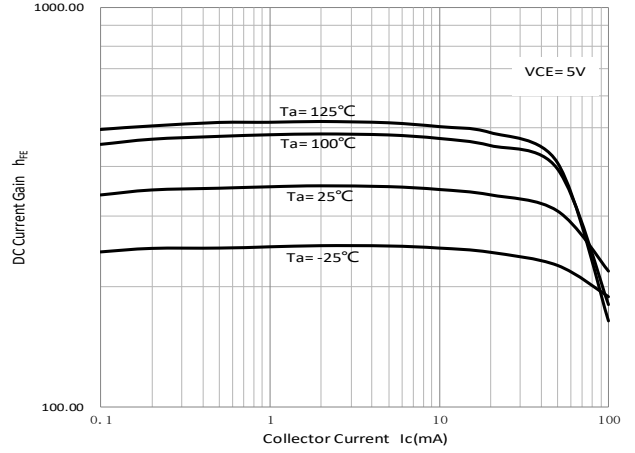


Fig 3: Collector-Emitter Saturation Voltage

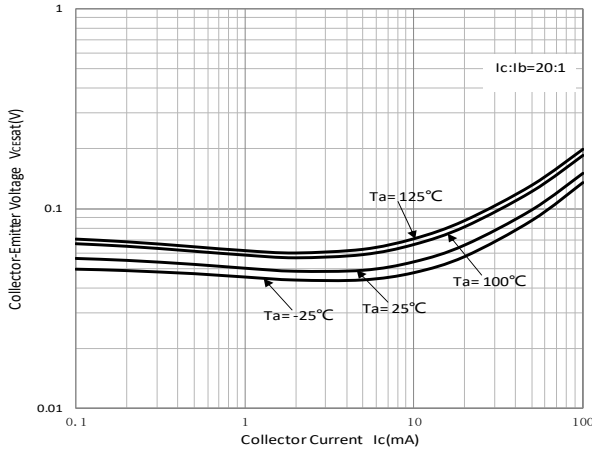


Fig 4: Base-Emitter Saturation Voltage

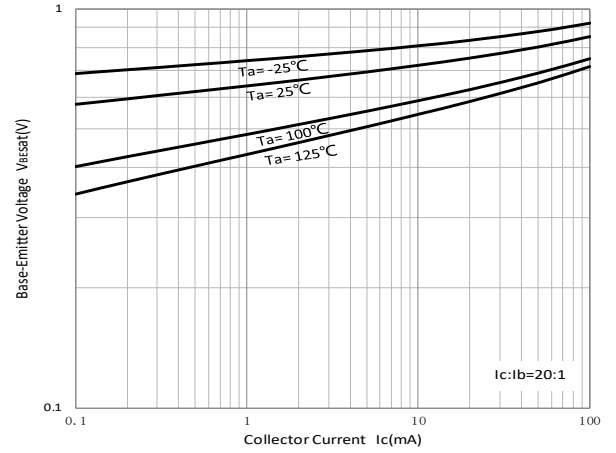


Fig 5: Base-Emitter On Voltage

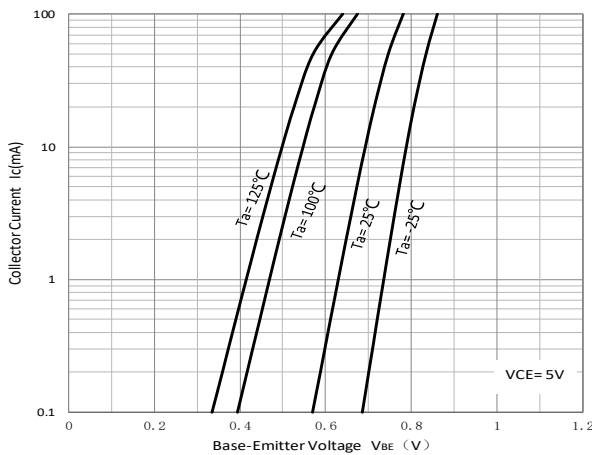


Fig 6: Cob/Cib-VCB/VEB

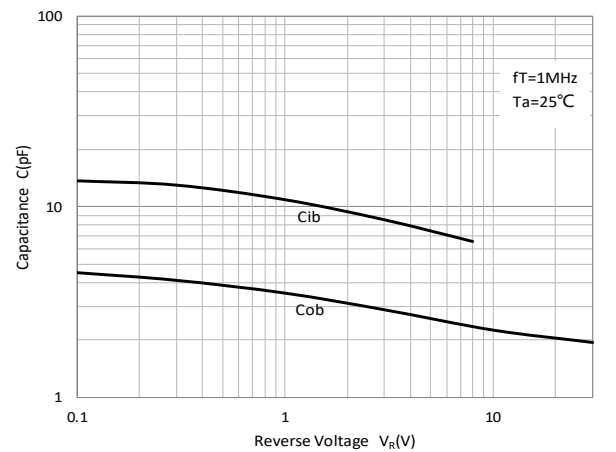
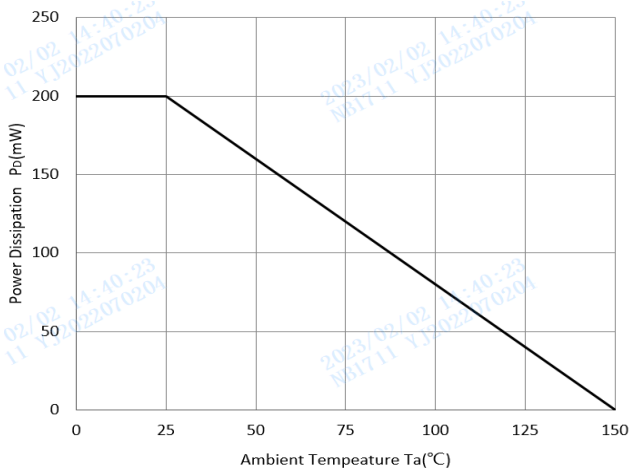




Fig 7: P_D-T_a Curve



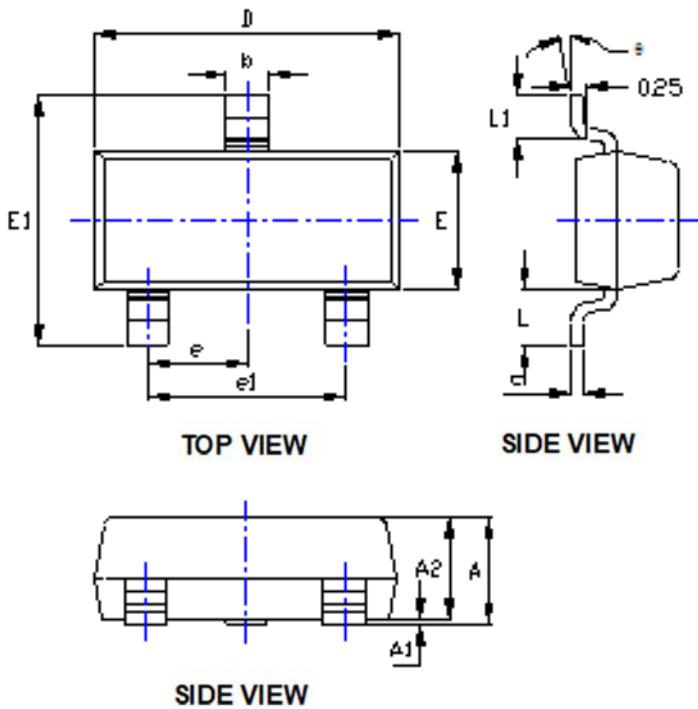


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■ Ordering Information

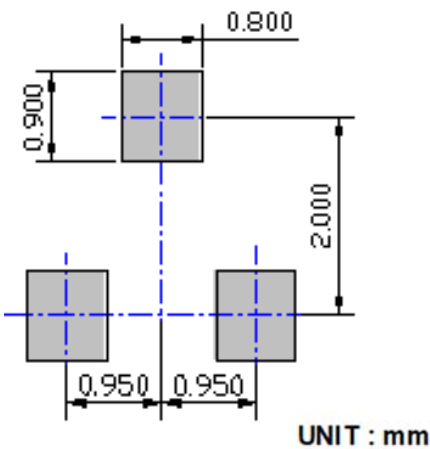
| Preferred P/N | Packing code | Unit weight(g) | Minimum package(pcs) | Inner box quantity(pcs) | Outer carton quantity (pcs) | Delivery mode |
|---------------|--------------|-------------------|----------------------|-------------------------|-----------------------------|---------------|
| BC846C | F2 | Approximate 0.008 | 3000 | 30000 | 120000 | 7" reel |
| BC846C | F4 | Approximate 0.008 | 10000 | / | 210000 | |

■ Outline Dimensions



| SYMBOL | DIMENSIONS | | | |
|----------|------------|-------|------------|-------|
| | INCHES | | Millimeter | |
| | MIN. | MAX. | MIN. | MAX. |
| A | 0.035 | 0.045 | 0.900 | 1.150 |
| A1 | 0.000 | 0.004 | 0.000 | 0.100 |
| A2 | 0.035 | 0.041 | 0.900 | 1.050 |
| b | 0.012 | 0.020 | 0.300 | 0.500 |
| c | 0.004 | 0.008 | 0.100 | 0.200 |
| D | 0.110 | 0.118 | 2.800 | 3.000 |
| E | 0.047 | 0.055 | 1.200 | 1.400 |
| E1 | 0.089 | 0.100 | 2.250 | 2.550 |
| e | 0.037TYP | | 0.950TYP | |
| e1 | 0.071 | 0.079 | 1.800 | 2.000 |
| L | 0.022REF | | 0.550REF | |
| L1 | 0.012 | 0.020 | 0.300 | 0.500 |
| θ | 0° | 8° | 0° | 8° |

■ Suggested Pad Layout





BC846C

Disclaimer

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